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(54) **METHOD AND APPARATUS FOR SECURING TIMING PACKETS OVER UNTRUSTED PACKET TRANSPORT NETWORK**

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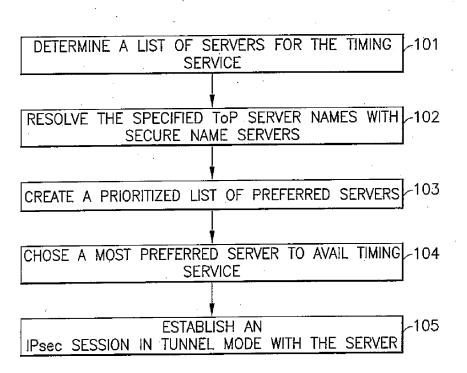*H04L 29/06* (2006.01)
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(57) **ABSTRACT**

Methods, devices, systems, techniques, and computer program products are provided to secure timing synchronization to network nodes connected over an inherently insecure best effort public network with mechanisms to improve accuracy of timing protocols such as a statistically estimated edge timestamp offset encoded into the timing message to account for network jitter and processing latency variances incurred due to the security packet processing and encryption; to ensure slave network nodes shall only accept timing messages from trusted timing sources; to establish a secure tunnel with a trusted timing source for exchange of timing packets; to provide authentication and security for timing packets over the insecure public network; and to enhance message anonymity with variable payload padding.

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DETERMINE A LIST OF SERVERS FOR THE TIMING SERVICE |—101

RESOLVE THE SPECIFIED ToP SERVER NAMES WITH SECURE NAME SERVERS |—102

CREATE A PRIORITIZED LIST OF PREFERRED SERVERS |—103

CHOSE A MOST PREFERRED SERVER TO AVAIL TIMING SERVICE |—104

ESTABLISH AN IPsec SESSION IN TUNNEL MODE WITH THE SERVER |—105